

LArSoft Update

Eric Church, 3-Sep-2010
uBooNE Collaboration mtg

- Effort, to date, is ArgoNeuT-centric, as is understandable. One of our big efforts is to instill/enforce an N-Plane, M-PMT, detector-agnostic coding paradigm.
- Lotsa room to get involved.
- We have bi-weekly meetings: next one is Th, 16-Sep-2010. Minutes are posted at <https://cdcv.sfnal.gov/redmine/projects/larsoft/wiki>. Open site: all LBNE/uBooNE/ArgoNeuT/Icarus, ... collaborators can see what we're doing. This is the best way to catch up.

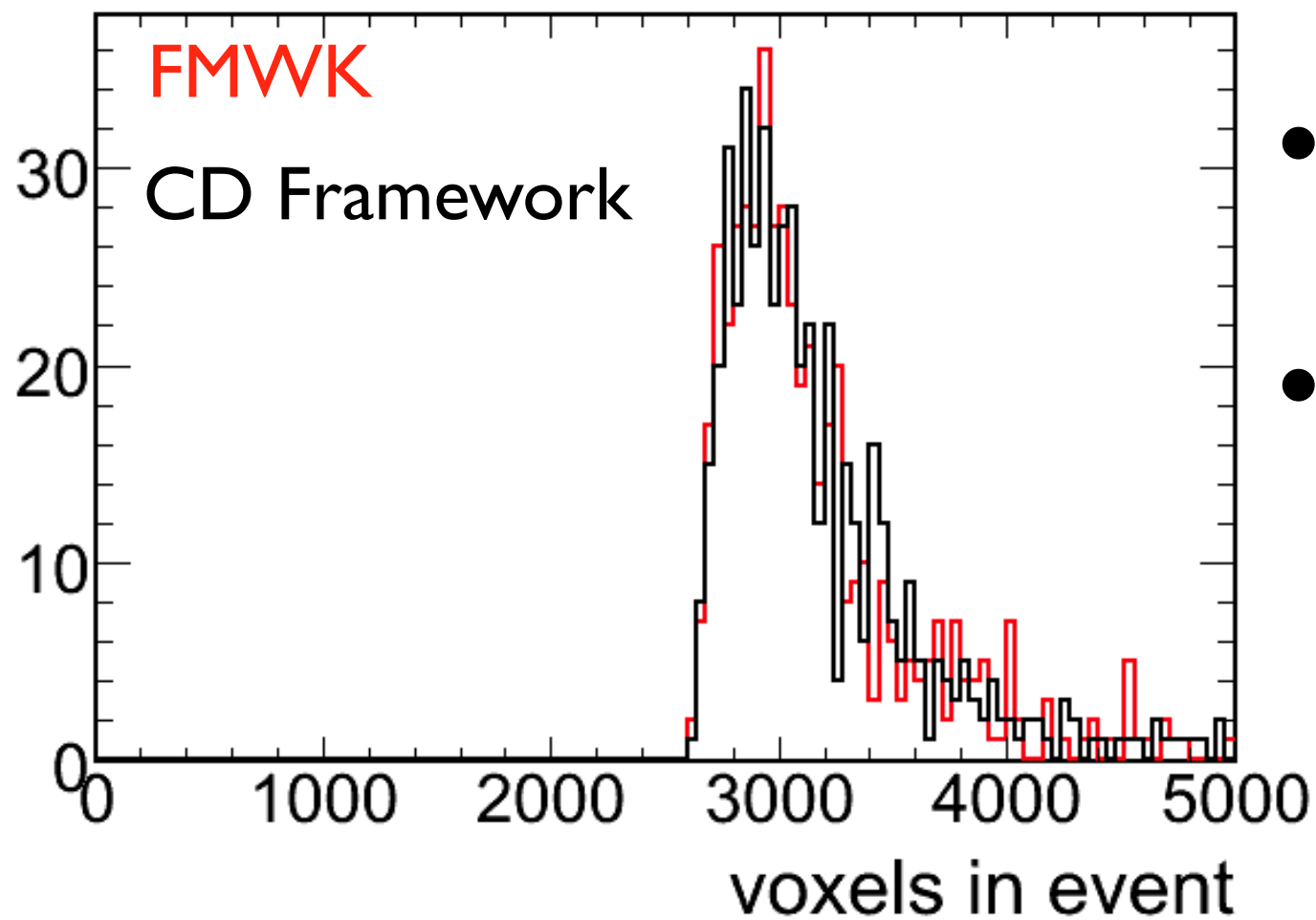
Working Reconstruction Chain

- MC events from NuMI/BNB flux files, interactions from GENIE, particles stepped by LArG4, e-s propagated to wires by Drift model, response function signal generated in DetSim ([B. Page](#)), and here Data/MC both proceed as
- calibrate in CALD, hitfinder ([B Page](#)), clusterfinder ([Kinga](#)), trackfinder ([Maddalena, Ornella](#)), vtxfinder ([Josh](#)), showerfinder ([Biagio](#)), ...
- optical stuff ([Ben](#)), event display ([Dave M](#), [Bill S](#), [Josh](#), [Brian R.](#))
- ArgoNeuT geometry ([Kinga](#)), uBooNE geometry ([Adam](#)), others. Please forgive me for not mentioning your work ... ([Sima](#)) ,
- scripts that call each module, one at a time, building the event.

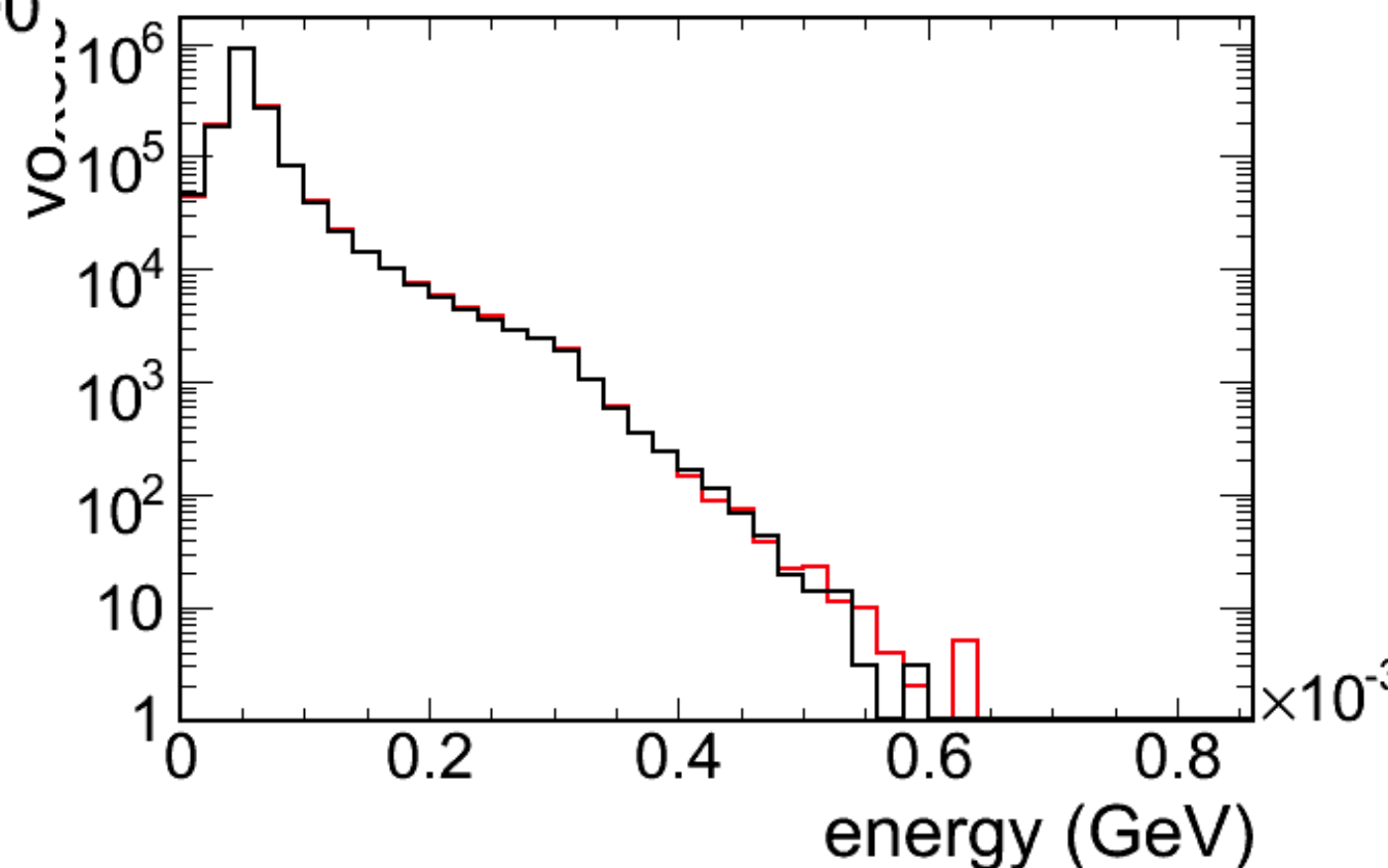
And now, we're going to switch from FMWK.

- FMWK -> CD ART
- A core of us Early Adopters are getting the new framework running the most upstream of those modules on previous slide, we hope by early October.
- Lay-user Workshop, [7-Oct-2010](#). This is also the cvs -ci hard cutoff date.

Sanity Check from Brian R: Comparing Output of LArG4



- Same number of voxels created by each version
- Same distribution of energy/voxel



Why?

- other Intensity Frontier experiments are going/mulling-going to ART: (g-2, mu2e, NOvA, LBNE?). PostDocs, students can be useful elsewhere.
- SRT build system of FMWK is crufty and soon to be unsupported. Weird ROOTy pointer memory issues in FMWK. cvs is oldschool, and not in a good way, our exposure to externals (ROOT, G4, ...) updates:
Longterm FNAL CD support is behind CD ART.

Now is better than later

- So, this is Brian R's and my and Early Adopters' full focus over next 6 wks. One follows a well-understood porting recipe. Should be straightfwd.
- Brian R has done a lot already: CRY, singleP, nu,p->X all work. Next is to get eventDisplay up and full recon chain to work.
- By mid-October we can hook up new users smoothly: disk space /uboone/app/users/xyz, viewable from uBooNE nodes uboonegpvmMN.fnal.gov; Public releases on Blue Arc space: /grid/fermiapp/uboone/. Condor-ization will follow.

Beyond Infrastructure, physics

- Showers are found per-plane right now. Needs generalization to 3D, N-planes => dE/dx .
- Events and associations among recon objects needs completion (Eric)
- uBooNE geometry
- That will finish the Recon chain.
- Then, the line begins to be blurred with individual experiments. uBooNE will develop its own code to do particle ID, e.g., though general code will still be shared.

Toward CD2/TDR

- Fine, I'll write something up.
- Will summarize the new framework, and the way in which collaborators will step in to contribute.
Would really like to wait 2 months, however, as the port becomes realized.
- Will write-up the full recon chain in MC/Data.
- Brian R and I think we're ahead of the development curve vis-a-vis offline software and typical CD2-era experiments
- Urge a short review and not tied to the CD2 timeframe

uBooNe collaborators

Plugging in

- Read minutes at redmine/projects/larsoft for latest in physics and infrastructure developments. Welcome at bi-weekly mtgs too.
- Come/connect to 7-October Workshop.
- Document to be posted re Code Standards.
- Thanks for patience till then in getting tools in place for the as-yet unengaged to step in and contribute. We must get off argoneut's resources and get ART up and configured.